PATENT COOPERATION TREATY 9/744868

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION CONCERNING
AMENDMENTS OF THE CLAIMS

(PCT Rule 62 and
Administrative Instructions, Section 417)

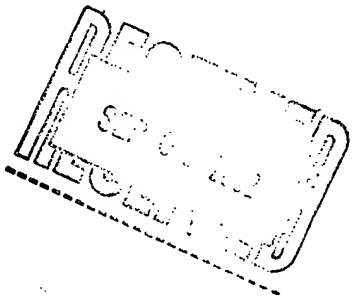
To:

Mme Daniela GRAN
European Patent Office
Erhardtstrasse 27
D-80331 Munich
ALLEMAGNE

in its capacity as International Preliminary Examining Authority

Date of mailing (day/month/year)	
29 July 2002 (29.07.02)	
International application No.	International filing date (day/month/year)
PCT/FI00/01036	29 November 2000 (29.11.00)
Applicant	
PORTALIFY OY et al	

The International Bureau hereby transmits a copy of the amendments to the claims under Article 19 together with any accompanying statement (Rule 62).



The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 740.14.35

Authorized officer

Zakaria EL KHODARY

Telephone No. (41-22) 338.83.38

PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Commissioner
US Department of Commerce
United States Patent and Trademark Office, PCT
2011 South Clark Place Room CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 29 July 2002 (29.07.02)	
International application No. PCT/FI00/01036	**Applicant's or agent's file reference** S0033PCT
International filing date (day/month/year) 29 November 2000 (29.11.00)	**Priority date** (day/month/year) 18 September 2000 (18.09.00)
Applicant ARONSSON, Hannu	

1. The designated Office is hereby notified of its election made:

[X] in the demand filed with the International Preliminary Examining Authority on:

18 April 2002 (18.04.02)

[ ] in a notice effecting later election filed with the International Bureau on:

2. The election [X] was

[ ] was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO **34, chemin des Colombettes** **1211 Geneva 20, Switzerland**	Authorized officer Zakaria EL KHODARY
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

09/744,868

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	**FOR FURTHER ACTION** see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
S0033PCT		
International application No.	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/FI 00/01036	29/11/2000	18/09/2000
Applicant		
PORTALIFY OY		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

[X] It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language,** the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   [ ] the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

   b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

   [ ] contained in the international application in written form.

   [ ] filed together with the international application in computer readable form.

   [ ] furnished subsequently to this Authority in written form.

   [ ] furnished subsequently to this Authority in computer readble form.

   [ ] the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   [ ] the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. [ ] **Certain claims were found unsearchable** (See Box I).

3. [ ] **Unity of invention is lacking** (see Box II).

4. With regard to the **title,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established by this Authority to read as follows:

5. With regard to the **abstract,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. 1

   [X] as suggested by the applicant.

   [ ] because the applicant failed to suggest a figure.

   [ ] because this figure better characterizes the invention.

   [ ] None of the figures.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI 00/01036

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04L 12/00
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5974449 A (CHANG ET AL), 26 October 1999 (26.10.99), figure 1, abstract ---	1,2,3,6,7,8, 17
A	EP 0923034 A1 (MATSUSHITA GRAPHIC SOMMUNICATIONS SYSTEMS, INC), 16 June 1999 (16.06.99), column 2, line 5 - column 3, line 18 ---	1-23
A	EP 0890913 A1 (PITNEY BROWES INC), 13 January 1999 (13.01.99), page 3, line 5 - line 29 --- --------	1-23

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
31 May 2001	12 07 2001
Name and mailing address of the International Searching Authority European Patent Office P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel(+31-70)340-2040, Tx 31 651 epo nl, Fax(+31-70)340-3016	Authorized officer Stefan Hansson/js Telephone No.

SA 316320

INTERNATIONAL SEARCH REPORT

Information on patent family members

30/04/01

International application No.
PCT/FI 00/01036

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5974449 A	26/10/99	NONE	
EP 0923034 A1	16/06/99	JP 11015755 A	22/01/99
		WO 9859297 A	30/12/98
EP 0890913 A1	13/01/99	CA 2243097 A	11/01/99

PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

International Application No.

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference *(if desired) (12 characters maximum)* S0033PCT

Box No. I TITLE OF INVENTION

INFORMATION DELIVERY SYSTEM, METHOD FOR INFORMATION DELIVERY, SERVICE PRODUCT AND USE OF THE SERVICE PRODUCT

Box No. II APPLICANT

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

PORTALIFY OY
Tekniikantie 12
FIN-02150 Espoo
Finland

☐ This person is also inventor.

Telephone No. +358 40 5006242

Facsimile No. +358 455 2962

Teleprinter No.

State *(that is, country)* of nationality: Finland

State *(that is, country)* of residence: Finland

This person is applicant for the purposes of: ☐ all designated States ☒ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

ARONSSON, HANNU
Kuusitie 9 A 29
FIN-00270 Helsinki
Finland

This person is:

☐ applicant only

☒ applicant and inventor

☐ inventor only *(If this check-box is marked, do not fill in below.)*

State *(that is, country)* of nationality: Finland

State *(that is, country)* of residence: Finland

This person is applicant for the purposes of: ☐ all designated States ☐ all designated States except the United States of America ☒ the United States of America only ☐ the States indicated in the Supplemental Box

☐ Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as: ☒ agent ☐ common representative

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

Innopat Ltd
P. O. Box 556
FIN-02151 Espoo
Finland

Telephone No. +358 9 25175377

Facsimile No. +358 9 4553117

Teleprinter No.

☐ **Address for correspondence:** Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Box No.V DESIGNATION OF STATES

The following designations are hereby made under Rule 4.9(a) *(mark the applicable check-boxes; at least one must be marked)*:

Regional Patent

- [X] **AP** **ARIPO Patent:** GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, MZ Mozambique, SD Sudan, SL Sierra Leone, SZ Swaziland, TZ United Republic of Tanzania, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT
- [X] **EA** **Eurasian Patent:** AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- [X] **EP** **European Patent:** AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, CY Cyprus, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT
- [X] **OA** **OAPI Patent:** BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT *(if other kind of protection or treatment desired, specify on dotted line)* .....

National Patent *(if other kind of protection or treatment desired, specify on dotted line)*:

- [X] **AE** United Arab Emirates
- [X] **AG** Antigua and Barbuda
- [X] **AL** Albania .....
- [X] **AM** Armenia .....
- [X] **AT** Austria .....
- [X] **AU** Australia .....
- [X] **AZ** Azerbaijan
- [X] **BA** Bosnia and Herzegovina .....
- [X] **BB** Barbados
- [X] **BG** Bulgaria .....
- [X] **BR** Brazil .....
- [X] **BY** Belarus .....
- [X] **BZ** Belize
- [X] **CA** Canada
- [X] **CH and LI** Switzerland and Liechtenstein
- [X] **CN** China .....
- [X] **CR** Costa Rica .....
- [X] **CU** Cuba .....
- [X] **CZ** Czech Republic .....
- [X] **DE** Germany .....
- [X] **DK** Denmark .....
- [X] **DM** Dominica
- [X] **DZ** Algeria .....
- [X] **EE** Estonia .....
- [X] **ES** Spain .....
- [X] **FI** Finland .....
- [X] **GB** United Kingdom
- [X] **GD** Grenada
- [X] **GE** Georgia .....
- [X] **GH** Ghana .....
- [X] **GM** Gambia
- [X] **HR** Croatia .....
- [X] **HU** Hungary .....
- [X] **ID** Indonesia
- [X] **IL** Israel .....
- [X] **IN** India .....
- [X] **IS** Iceland
- [X] **JP** Japan .....
- [X] **KE** Kenya .....
- [X] **KG** Kyrgyzstan .....
- [X] **KP** Democratic People's Republic of Korea .....
- [X] **KR** Republic of Korea .....
- [X] **KZ** Kazakhstan .....
- [X] **LC** Saint Lucia
- [X] **LK** Sri Lanka
- [X] **LR** Liberia
- [X] **LS** Lesotho .....
- [X] **LT** Lithuania
- [X] **LU** Luxembourg
- [X] **LV** Latvia
- [X] **MA** Morocco .....
- [X] **MD** Republic of Moldova .....
- [X] **MG** Madagascar .....
- [X] **MK** The former Yugoslav Republic of Macedonia .....
- [X] **MN** Mongolia
- [X] **MW** Malawi .....
- [X] **MX** Mexico .....
- [X] **MZ** Mozambique
- [X] **NO** Norway
- [X] **NZ** New Zealand .....
- [X] **PL** Poland .....
- [X] **PT** Portugal .....
- [X] **RO** Romania
- [X] **RU** Russian Federation .....
- [X] **SD** Sudan
- [X] **SE** Sweden
- [X] **SG** Singapore
- [X] **SI** Slovenia .....
- [X] **SK** Slovakia .....
- [X] **SL** Sierra Leone .....
- [X] **TJ** Tajikistan .....
- [X] **TM** Turkmenistan .....
- [X] **TR** Turkey .....
- [X] **TT** Trinidad and Tobago .....
- [X] **TZ** United Republic of Tanzania
- [X] **UA** Ukraine .....
- [X] **UG** Uganda .....
- [X] **US** United States of America .....
- [X] **UZ** Uzbekistan .....
- [X] **VN** Viet Nam .....
- [X] **YU** Yugoslavia .....
- [X] **ZA** South Africa .....
- [X] **ZW** Zimbabwe .....

Check-box reserved for designating States which have become party to the PCT after issuance of this sheet:

☐ .....

Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. *(Confirmation (including fees) must reach the receiving Office within the 15-month time limit.)*

See Notes to the request form

Box No. VI PRIORITY CLAIM ☐ Further priority claims are indicated in the Supplemental Box.

Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is: national application: country	regional application:* regional Office	international application: receiving Office
item (1) 18th September, 2000 18.9.2000	20002049	Finland		
item (2)				
item (3)				

☒ The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) *(only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office)* identified above as item(s): FI20002049

* *Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See Supplemental Box.*

Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA) *(if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used)* : ISA / EPO

Request to use results of earlier search; reference to that search *(if an earlier search has been carried out by or requested from the International Searching Authority)*: Date *(day/month/year)* Number Country *(or regional Office)*

Box No. VIII CHECK LIST; LANGUAGE OF FILING

This international application contains the following **number of sheets**:

request	:	3
description (excluding sequence listing part)	:	19
claims	:	4
abstract	:	1
drawings	:	5
sequence listing part of description	:	
Total number of sheets	:	32

This international application is **accompanied by** the item(s) marked below:

1. ☒ fee calculation sheet
2. ☒ separate signed power of attorney
3. ☐ copy of general power of attorney; reference number, if any:
4. ☐ statement explaining lack of signature
5. ☐ priority document(s) identified in Box No. VI as item(s):
6. ☐ translation of international application into (language):
7. ☐ separate indications concerning deposited microorganism or other biological material
8. ☐ nucleotide and/or amino acid sequence listing in computer readable form
9. ☐ other *(specify)*:

Figure of the drawings which should accompany the abstract: 1

Language of filing of the international application: English

Box No. IX SIGNATURE OF APPLICANT OR AGENT

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).

29th November, 2000
Innopat Ltd

Päivi Söderman
European Patent Attorney

For receiving Office use only

1. Date of actual receipt of the purported international application:
2. Drawings: ☐ received: ☐ not received:
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:
4. Date of timely receipt of the required corrections under PCT Article 11(2):
5. International Searching Authority (if two or more are competent): ISA /
6. ☐ Transmittal of search copy delayed until search fee is paid.

For International Bureau use only

Date of receipt of the record copy by the International Bureau:

This sheet is not part of and does not count as a sheet of the international application.

PCT

FEE CALCULATION SHEET
Annex to the Request

For receiving Office use only

International application No.

Date stamp of the receiving Office

Applicant's or agent's file reference: S0033PCT

Applicant: Portalify Oy

CALCULATION OF PRESCRIBED FEES

1. TRANSMITTAL FEE . . . . . 800,00 FIM [T]

2. SEARCH FEE . . . . . 5618,71 FIM [S]

International search to be carried out by European Patent Office

(If two or more International Searching Authorities are competent in relation to the international application, indicate the name of the Authority which is chosen to carry out the international search.)

3. INTERNATIONAL FEE

Basic Fee

The international application contains 32 sheets.

first 30 sheets . . . . . 2431,80 FIM [b1]

2 (remaining sheets) x 53,51 FIM (additional amount) = 107,02 FIM [b2]

Add amounts entered at b1 and b2 and enter total at B . . . . 2538,82 FIM [B]

Designation Fees

The international application contains _____ designations.

8 (number of designation fees payable *(maximum 8)*) x 523,22 FIM (amount of designation fee) = 4185,76 FIM [D]

Add amounts entered at B and D and enter total at I . . . . . 6724,58 FIM [I]

(Applicants from certain States are entitled to a reduction of 75% of the international fee. Where the applicant is (or all applicants are) so entitled, the total to be entered at I is 25% of the sum of the amounts entered at B and D.)

4. FEE FOR PRIORITY DOCUMENT *(if applicable)* . . . . . 422,00 FIM [P]

5. TOTAL FEES PAYABLE . . . . . 13565,29 FIM

Add amounts entered at T, S, I and P, and enter total in the TOTAL box — TOTAL

☐ The designation fees are not paid at this time.

MODE OF PAYMENT

☐ authorization to charge deposit account (see below)
☐ bank draft
☐ coupons
☐ cheque
☐ cash
☐ other *(specify)*:
☐ postal money order
☐ revenue stamps

DEPOSIT ACCOUNT AUTHORIZATION *(this mode of payment may not be available at all receiving Offices)*

The RO/ _____

☐ is hereby authorized to charge the total fees indicated above to my deposit account.

☐ *(this check-box may be marked only if the conditions for deposit accounts of the receiving Office so permit)* is hereby authorized to charge any deficiency or credit any overpayment in the total fees indicated above to my deposit account.

☐ is hereby authorized to charge the fee for preparation and transmittal of the priority document to the International Bureau of WIPO to my deposit account.

Deposit Account No. | Date *(day/month/year)* | Signature

See Notes to the fee calculation sheet

PATENT COOPERATION TREATY

290.745USN

From the RECEIVING OFFICE

To:
Innopat Ltd

PCT

NOTIFICATION OF RECEIPT OF PAPERS PURPORTING TO BE AN INTERNATIONAL APPLICATION

(PCT Administrative Instructions, Section 301)

Applicant's or agent's file reference S 0033 PCT	Date of mailing *(day/month/year)* 29 -11- 2000
International application No. PCT/FI 00 / 01036	IMPORTANT NOTIFICATION
Applicant Portalify Oy	Date of receipt *(day/month/year)* 29 -11- 2000
Title of the invention	

1. The applicant is hereby notified that this receiving Office has received papers purporting to be an international application on the date of receipt indicated above.

2. The applicant's attention is drawn to the fact that these papers have not yet been checked by this receiving Office in respect of their compliance with the requirements of Article 11(1), that is, whether these papers meet the requirements necessary for the according of an international filing date.

3. As soon as this receiving Office has checked these papers, it will inform the applicant accordingly.

4. These papers have provisionally been given the international application number indicated above. The applicant is hereby requested to make reference to that number in all correspondence with this receiving Office.

Following payments have been made in respect of the application:

Transmittal fee ..... _____

Search fee ..... SE / EP ..... _____

International fee (basic fee + designation fees) ..... _____

Fee for priority document ..... _____

Fee for mailing priority document (incl. VAT 22%) ..... _____

Total fees payable ..... _____

Helsingissä 29 / 11 20 00

Name and mailing address of the receiving Office Patentti- ja rekisterihallitus Arkadiankatu 6 A FIN-00100 HELSINKI Finland Facsimile No. (09) 6939 5328	Authorized officer Maija-Liisa Grönqvist Telephone No. (09) 6939 500

Form PCT/RO/125 (July 1992)

US/01/10313

AMENDED CLAIMS
[received by the, International Bureau on 27 June 2001 (27.06.01);
original claims 2, 4, 10-15, 17, 26 and 27 amended; original claim 1 cancelled;
new claim 34 added; remaing claims unchanged (7 pages)]

FI/00/01036

AMENDED CLAIMS
[received by the International Bureau on 4 September 2001 (04.09.01);
original claims 1-23 replaced by new claims 1-24 (5 pages)]

US/01/11585

AMENDED CLAIMS
[received by the International Bureau on 2 October 2001 (02.10.01);
original claim 1-3 amended; original claims 4-24 cancelled;
new claims 25-45 added; (5 pages)]

+ STATEMENT

JP/01/03925

AMENDED CLAIMS
[received by the International Bureau on 9 October 2001 (09.10.01);
original claim 1 amended; original claims 2 and 3 cancelled;
remaining claims unchanged (1 page)]

+STATEMENT

US/01/02283

AMENDED CLAIMS
[received by the International Bureau on 8 July 2001 (08.07.01);
original claim 5 cancelled; original claims 1, 2, 3 and 6 amended;
new claim 7 added; remaining claim unchanged (2 pages)]

+ STATEMENT

CLAIMS

1. Information delivery system, which is connected to one or more communication networks and which comprises

a) an information delivery server having

information receiving modules for receiving messages from one or more networks and for converting of those to a form suitable for the information processing unit,

an information processing unit, which processes the messages in accordance with their content, fetches the information requested, handles the data and constructs replies to those,

information sending modules for sending the replies to one or several networks and for converting of those to a form suitable for the receiver,

characterised by

b) a user interface, with which services can be used, created and/or maintained in the information delivery server from one or more terminals connected to the information delivery system, by means of a service product for fetching, processing or storing information, the operation program of the service product being presented as a list of selected operations in a database in text form or in a ready-to-use form.

2. Information delivery system of claim 1, characterised in that the information sending modules get answers from an information control module for sending of the replies to the sending module of a suitable network.

3. Information delivery system of claim 1 or 2, characterised in that the information processing unit, which handles the messages in accordance with

their content, fetches the data requested in them from one or more networks or data bases stored in the server.

4. Information delivery system of any of patent claims 1 - 3, c h a r a c t e r i s e d in that the information processing unit handles the messages and fetches the information requested in them by means of the service product created in the information delivery server, which product is created in form of a command list program, in form of a simple list of functions.

5. Information delivery system of claim 4, c h a r a c t e r i s e d in that the program is stored in a data base in the server or in some network connected to the server.

6. Information delivery system of any of claims 1 - 5 c h a r a c t e r i s e d in that the communication network is an open computer network, a closed computer network and/or a wireless communication network.

7. Method of delivering information to one or more communication networks, in which method

a) messages are received from one or several networks,
b) the received messages are converted to a suitable form for further processing,
c) the messages are processed in accordance with the content, the information requested in them is fetched, the data is processed and replies to them are constructed,
d) the replies are sent to correct network when they have been converted to a form suitable for the network in question,

c h a r a c t e r i s e d in that the information is delivered by means of a service product for fetching, processing or storing information, the operation program of

the service product being presented as a list of selected operations in a database in text form or in a ready-to-use form.

8. Method of claim 7, c h a r a c t e r i s e d in that the information requested in the messages is fetched from one or several networks or from a data base stored in the server.

9. Method of any of claims 7 - 8, c h a r a c t e r i s e d in that the messages are processed and the information requested in them is fetched by means of the service product created in the information delivery server, which product is created as a list of simple functions in form of a command list program.

10. Method of any of claims 7 - 9 c h a r a c t e r i s e d in that the information delivery product is stored in a database.

11. Method of any of claims 7 - 10 c h a r a c t e r i s e d in that the information delivery product is modified and/or created for own use and/or for everyone and/or for a limited user group by means of parameters which are added to the fields of the information delivery product program.

12. Method of any of claims 7 -11 c h a r a c t e r i s e d in that the function of the information delivery product is described with a binary program module which is transferred to the information delivery server.

13. Method of any of claims 7 -11 c h a r a c t e r i s e d in that the function of the information delivery product is described with a program which is stored in some other place of the network.

14. Method of any of claims 7 -13 c h a r a c t e r i s e d in that userwise or servicewise data, for the part of each information delivery product, is stored in the server between the requests.

15. Method of any of claims 7 -14 c h a r a c t e r i s e d in that individual data of the user is stored in the server, but not necessarily identification data of the user.

16. Method of any of claims 7 -15 c h a r a c t e r i s e d in that the information delivery product is constructed to follow the mediated information and its copyright situation and possibly to hinder the access to given data in given networks.

17. Method of any of claims 7 -16, c h a r a c t e r i s e d in that the reply of the service can be delayed to improve data security.

18. Service product for fetching, processing or storing information in an information delivery server of any of claims 1 - 6, which is connected to one or several communication networks, with which service product requests can be received from different networks and replies can be sent to them, c h a r a c t e r i s e d in that the operation program of the service product is presented as a list of selected operations in a database in text form or in a ready-to-use form..

19. Service product of claim 18, c h a r a c t e r i s e d in that it is a list of simple functions in form of a command list program

20. Service product of claim 18 or 19, c h a r a c t e r i s e d in that its function is described with a binary program module and transferred to the information delivery server or to another place in the network.

21. Service product of any of claims 18 - 20, c h a r a c t e r i s e d in that the function program of the service is presented in the data base in a menu form or in text form.

22. Service product of any of claims 18 - 21, c h a r a c t e r i s e d in that the functional program of the service is presented for the service producers in a form in which they can add the command parameters by themselves.

23. Service product of any of claims 18 - 22, c h a r a c t e r i s e d in that the functional program of the service is already in such a form for the service users, partly or completely, that the service can be used to receive information.

24. The use of the service product of any of claims 18 - 23 for creating a service to an information delivery server, which is connected to one or more communication networks, with which service requests can be received from different networks and replies can be sent to them, c h a r a c t e r i s e d by adding command parameters to the service product in the form of a list of simple functions to be placed in the function fields of the operator program of the service product, which is created as a command list program.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
21 March 2002 (21.03.2002)

PCT

(10) International Publication Number
WO 02/23803 A1

(51) International Patent Classification[7]: H04L 12/00

(21) International Application Number: PCT/FI00/01036

(22) International Filing Date:
29 November 2000 (29.11.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
20002049 18 September 2000 (18.09.2000) FI

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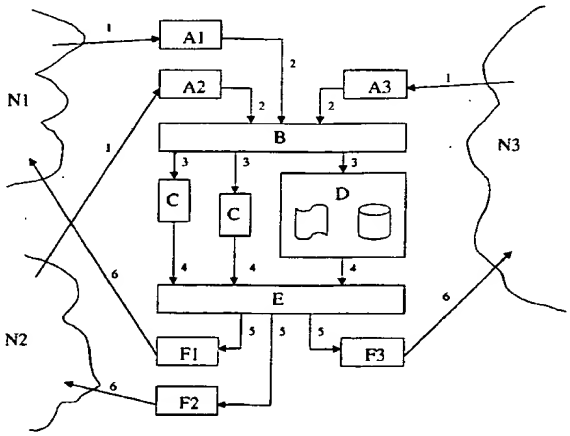
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*
— *with amended claims*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: INFORMATION DELIVERY SYSTEM, METHOD FOR INFORMATION DELIVERY, SERVICE PRODUCT AND USE OF THE SERVICE PRODUCT



(57) Abstract: The information delivery system of the invention is connected to one or more communication networks. It comprises an information delivery server comprising information receiving modules for receiving of messages from one or more networks and for converting of those to a form suitable for the information processing unit, an information processing unit, which handles the messages in accordance with their content, fetches the information requested, handles the data and constructs replies to those, information sending modules for sending of the replies to one or several networks and for converting of those to a form suitable of the receiver, a user interface, with which services can be created and maintained in the information delivery server from one or more terminals connected to the information delivery system. The invention also provides a method for delivering information to one or more communication networks and a service product to be used in the information delivery server of the invention. The service product of the invention can be used for creating a service to the information delivery server or for searching or delivering information.

WO 02/23803 A1

INFORMATION DELIVERY SYSTEM, METHOD FOR INFORMATION DELIVERY, SERVICE PRODUCT AND USE OF THE SERVICE PRODUCT

The invention is concerned with an information delivery system, which is connected to one or more communications networks, a method for information delivery into one or more networks, a service product used in the information delivery system and a method for creating a service in an information network.

TECHNICAL BACKGROUND

Computer networks consist of two or more computers which are connected together. A Local Area Network (or internal network) can consist of computers within a company, whereas a Wide Area Network can cover larger areas, such as several cities or even countries. The networks can be interconnected with cables, fibres and/or radio links.

The internet is an example of an internetworked wide area network. This worldwide network can be used for communication and information delivery and information retrieval. The open and common internet has grown phenomenally during the last few years and a large number of services for large and small user groups have developed on the internet. Major reasons for the rapid growth of the internet is the openness of the network technology and the possibility for almost everybody to produce their own content and services on the network with small resources. Thus, the internet allows also services which have a relatively very small but globally large enough user base.

There are also more closed, specialised networks in the world, such as the networks based mostly on telephone technology that are used by wireless communications devices. An example of this kind of network is the GSM cellular telephone network. Typically, the use of the networks and services on it, such as

the Short Message Service (SMS), is limited to the customers of a certain telecom operator.

These specialised networks are used mostly for communications between two people as it is technically cumbersome to build general services on them, and different solutions are needed for the networks of different telecom operators. Because of this, only services for large user groups have been built on these networks, and thus there is no large group of information service producers as that of the internet.

Building a service to a network currently requires writing a traditional service program. Traditional programming is difficult, requires programming skills from the creator, and representing of the program in a certain exact form.

Visual programming systems are also complex and hard to use and are not very well suited for information delivery between networks of very different types. In a visual programming system, the program is created by combining rigid operations in form of graphic elements on the screen. Traditional visual programming systems require e.g. large graphic display devices and are not usable on small limited devices. These systems are used mostly for industrial process modelling applications.

The WO publication 9915959 is an example of this kind of solution, where a user can create multimedia programs in real time with a visual programming system.

Different networks work with differing principles and deliver information in different formats and forms. Communication between computers takes place according to certain rules, which are called protocols and there are many different protocols.

TCP/IP (Transmission Control Protocol/Internet Protocol) is one such protocol and it is widely used on the internet. The IP protocol handles packets of data and determines where to send the packets so that they will reach the correct destination. TCP is a transport protocol which builds a virtual connection between the sender and the receiver. The internet also uses other protocols built on top of the TCP/IP

protocol, such as SMTP (Simple Mail Transfer Protocol) for electronic mail, HTTP (Hypertext Transfer Protocol) for transferring web pages and DNS (Domain Name Service) for name and address queries on the network.

In the telephone network, a continuous connection is created on the logical level between the terminals and information is sent as a coded sound signal at a constant rate. There are a few standards for representing data and services have been built on top of the basic network, such as voice call, data call (in the ISDN or GSM network). Typically, the use of the network is charged by connection time.

On the internet, information is transmitted in small packets and at a speed required at a certain moment. There are many ways to present information on top of the basic technology. Typically, the use of the network is charged according to connection time, or amount of information transmitted internationally.

In the GSM Short Message network, information is sent as separate 160-character short messages by using the SMS standard. There is no continuous connection. Typically, the use of the network is charged according to the number of messages sent and the price for a single message can be high.

In Finland, online credit card checks are done via the X.25 network, which is an old networking technology and complex to attach to a modern network. X.25 is a primitive packet network, where the packet layer is used to share resources between several logically continuous telephone-network-like virtual connections.

Delivering information across these different networks is hard because the networks operate in different ways and the information has to be converted into a form (standard) that is suitable for the communications devices on the target network.

Networks can be interconnected with a gateway that converts information into the format required by another network. Automatic conversion works only with similar networks and services.

Because connecting different networks is hard to do, the access to the services of e.g. a GSM network is closed except to some few non-customised services targeted

at large user groups, which someone sees as financially profitable to build by using expensive traditional methods.

These problems create needs that are awaiting solutions. Among others, there is a need for a method for delivering and converting information between different networks in a flexible way.

There is also a need for a system for managing an information delivery system that has a large group of information producers and users, like on the internet.

THE INVENTION

This invention describes an information delivery system which is connected to one or more communications networks. It comprises an information delivery server, which has information receiving modules for receiving messages from one or several networks and for converting that information to a suitable format for an information processing unit, an information processing unit which processes the queries according to their content, fetches the information requested, processes the information and builds replies to the queries, and information sending modules which send the replies to one or more networks and convert them to a format suitable for the receiver. The system also includes a user interface, which allows the creating and maintaining of services on the information delivery server from one or more terminals connected to the information delivery system.

Preferably, a routing module sends the replies to a suitable information sending module connected to a suitable network.

The information processing unit, which processes the queries according to their content, fetches the information requested from one or more networks or databases connected to the server.

According to the method of this invention intended to deliver information to one or more communications networks, queries are received from one or more networks, the queries are converted to a suitable form for further processing, they are processed in accordance with their content, the information requested in them is fetched and processed, replies are build to the queries and the replies are sent to the correct network after they have been converted to a format suitable for that network.

The invention also provides a service product to be used in the information delivery server of the invention. The service product can be used to build services on the information delivery server or to fetch, process or store information.

The following text lists some preferable implementations for the invention.

The operation of a service product can be described as a binary program module which is stored on the server or on the network. The operation program of the service can be presented as a list of selected operations (in some database) or in text form. For service providers it can be presented in a form, where they can add command parameters. For service users it is presented in a ready-to-use form.

The queries are processed with a program, which has been created as a command list in the server, as a list of simple operations. The program is stored into a database on the server or at another location on a connected network.

The service description is stored in a database and its operation program is presented and processed by the system. The service can be modified and/or created for a private and/or public and/or restricted user group by using parameters which are typed into input fields in the service program. The operation of a service can also be described by a binary program module, which is transferred to the information delivery server. The service can also be described by a program stored elsewhere on the network.

An Information delivery service, which is created on the service program, can consist of fetching information from the internet, e.g. fetching of a home page or a

news page, or fetching information using some other internet protocol. A service can also fetch information from a database which is on the server or on a network.

The server has a number or an address on the network through which requests can be sent to it when a user wishes to use the services.

Different networks have different ways of finding the information delivery server's address, name or identity and for sending a request. The request can be sent from the GSM network as an SMS message, from an iMode device, from a computer connected to the internet using a www page, of through e-mail.

A major benefit of this invention is that the configuring services on the information delivery server is open to all users. In addition, the invention offers a simple way to create services, e.g. with a programming list interface as described.

The reply can be delayed in some functions by a suitable time to make unauthorised use of borrowed communications devices harder.

In the following, the invention is described with figures which are not meant to restrict the invention.

FIGURES

Figure 1 is a general diagram of an information delivery server described in this invention

Figure 2 shows the general format of a command list in the information delivery server

Figure 3 shows an example of a service built using the command list format.

Figure 4 is a protocol description for using a service built according to this invention

Figure 5 shows a detailed protocol flow for executing a service command list

DETAILED DESCRIPTION

The information delivery system of the invention is presented in figure 1. The system has information delivery connections 1, through which the system receives 1 requests from the networks N1, N2, N3 and sends (Fig. 1, 6) replies to those.

The information receiving modules A1, A2, A3 receive 1 information, requests and replies from a certain network N2, N2, N3 and convert the information data to a uniform internal format of the system, so that the later modules in the system would not need to know about different properties of different networks. Such an internal presentation format for data can for example consist of name and value pairs, in which for example the content of the request, the identification data of the sender in the network (for example the telephone number), identity of the sender (if the sender has been identified from the identification data of the network), the information of the arrival time of the request and internal administrational data of the system. There can also be modules, which are technically similar but which are intended for administrationally different networks, for example for networks of different operators.

The information receiving module also identifies, if possible, the user, on the basis of the data given by the network. The information routing module B receives the requests coming to the system and directs 3 them according to the data in the request to a suitable processing module. For example in a GSM SMS network, the first word in the request can identify the service, which is desired to be used. Other networks have own practises for the identification of the service.

If necessary, the information routing module and the processing module further check the identity of the user with some more secure way of identification in the network, for example with a password or a PIN-code.

The information processing modules C process data, fetch data from different networks, modify the format of the data and form replies to the questions. In the following, such a module D is described more in detail but there can be several different modules. One example of a processing module is a general solution that

can be programmed by everyone, but there can be other modules, for example more complicated services, etc., which are realised with a different technique than said system. The data sending control module E receives 4 the replies created by the system and sends 5 them to a suitable sending module of the network. Also the information processing module can convert the information data approximately to a form needed by the network. The sending module can then make a more technical conversion on a lower level.

The information sending modules F1, F2, F3 send 6 data, requests and replies to a given network by converting them to a suitable form for the network in question. In some of the networks, the receiving and sending modules can be in one single module.

The administrational modules (not described) take care of the charging, copyright follow up and other collecting, storing, handling and control of data which is required by the system for administration.

The delivery server can work in one centralised server or these functions can be spread among several servers.

With the user interface, the functional instructions for the service are created, tested and placed for private, limited or public use. The user of the user interface can construct a program by the use of which an own service can be created in the information delivery system.

The service program is such that by feeding given parameters to it, a list of commands are achieved, which are performed in order to carry out the function of the service.

Also such commands can be made in the command list which work conditionally, are transferred to some other place in the command list, or work repeatedly.

The principle of such a command list is presented in figure 2. Each element in the command list consists of the command, specifications and parameters as well as of additional information for the command in question. These are presented for the

user in form of clear selection menus, so that the user would not need to remember the names of the commands or any special way of presentation of the commands. Each command is a simple individual function, easy to understand.

Examples of such functions are presented below. There can be different functions and types of functions depending on for example the users of the system.

In the third parameter part of all commands, the results of other command lines, as well as the words and data in the request, can be used in a flexible way, for example the words used in the request for fetching data from a www-address can be used as words for the www-service.

The general information processing module of the invention can for example handle following kinds of commands:

- Fetching and transferring of data:
  Search from Internet; HTML-code; http://www.example.com
  Searches the html-code of the www-page from the www-server working at the given address.
  Search from Internet; finger-data;username@example.com
  Makes a request according to the finger-protocol from internet to the given device.
  The finger-data tells for example if the user at that moment sits at the terminal.
  Search from Internet; whois-data ; example.com
  Makes a whois-request from internet according to the given domain-name. Whois-data contain the situation of the domain (free, occupied) as well as data of the owner of the domain-name.
  Send to Internet ; e-mail; address and text
  Sends an e-mail message to the given e-mail address.
  Perform; SSH-remote command; example.com, command
  Performs the given command in an other server by using the Secure Shell (ssh)-program for secure data transformation and identification.

- Data processing:

  Go; to the beginning of the line; how many lines back

  Transfers the cursor in the document backwards to the beginning of the line.

  Search; forward in the text; text to be found

  Finds the given text in the document, by beginning from the position of the cursor.

  Select; to the end of the line; how many lines

  Transfers the cursor forwards to the end of the line and saves the former place of the cursor and the text between the end of the line as a result of this command.

  Change; the letters to capitals; from which text

  Changes all letters in the text in the argument to capitals.

  Perform; calculation; the equation of the calculation

  Performs the calculation given.

  Remove from the text; HTML-codes ; (no parameters)

  Removes the html-code marks from the document (<something>).

  Store data; userwise ; the name of the data and the data itself

  Stores some information userwise in a permanent archive, from where it can be used next time. In such a way the service can save for example the last reply that is easy to repeat.

  Search information; servicewise information; the name of the information

  Fetches the data stored servicewise, which the service can make use of.

- Repeatable operations and conditional functions:

  Repetition; collect results and repeat; what place in the program to repeat

  Perform a part of the command list again and again by collecting, at each time, the result of the last command as long as the length of the results together can be put in the limited length of the reply. With this function, repeatable information can be fetched from the page so that the reply becomes full.

  If the previous command was successful; go to a place in the program; to what place

  If the previous function was not successful (for example if the search of the

www-page failed, the text to be found was not found) then go to a given place in the command list. By means of these commands, error situations and selection situations can be taken care of.

If the previous function failed; send an error message ; The text of the error message

If the function was not successful, the given failed message is sent back to the person who made the request.

- Functions for a trusted and limited user group:

Search information; from a data base; the query command of the data base

Performs the given data base request and sets the result of the data base request to be the result of this command line.

Execute the program; in the delivery server; the name of the program

Executes the given program in the delivery server.

Execute the program; Perl-program; the code of the program

Performs the given program given as parameters in perl-language inside the information processing module.

The users can use these functions for controlling of the function of the data delivery server and establish different delivery functions. Such a limited command list system is realised so that there can be many users and services and the maintenance of those is spread among a big user group.

The command list is in other words presented for the user as a list of functions. At each function, there is a function with which the user can remove a function, add a new function before that or after that, move a function to be an earlier function or a later function, and test the functionality of the command list until this function, and other corresponding functions

In the user interface, the user can also test the functionality of the command list in different ways, for example by performing the list only to a given stage, or by following the performance of it in the different stages. Hereby, the performing

module performs the command to a desired stage, by showing the intermediate results for the user and the end results after the execution.

Also general parameters in connection to the service are set with the user interface, for example it is decided if the service is private, intended for a limited user group or if it is open for everyone.

The storing of the functional data of the service takes place in such a form in the delivery server that the conversion and the performance of those is easy.

The command list can be stored in a data base for example in a form according to figure 2.

The command list is presented in the data base of the delivery server in form of simple lines, which are processed by the user interface and the performance module uses these commands in its performance.

The command list can also be presented in text mode for advanced users, for transferring or for printing.

The performing module performs the stored instructions in the delivery server and thus performs the function of the service in practise.

When the routing module of the system has drawn the conclusion that the request should be sent to some certain performance module or processing module, the request is routed and, depending on which service it is question about, the performing module downloads the command list of the service from a data base or some other storage form and performs the functions in them in accordance with the instructions in the command lines.

The performing module also stores the data in connection with the execution, e. g. the result of each command, the information about that if the work of the command was successful or not, possibly the information fetched from an external network, possibly information produced by an external program etc. In such a way the result of earlier performed commands can be used in a flexible way in the command list.

The system also stores data of the users and services for each service for a longer time, whereby the system can "remember" the settings and the data and thereby produce more complicated services in this way. The service does not necessarily know who the user of the service is, but the system can store data anonymously with respect to the service.

In this way, the execution module can perform the function of the masscustomised service.

In the following there is presented an example of a service form, which has been described exactly to illustrate the invention. It is clear that a lot of different embodiments are possible in the scope of the invention and the claims.

EXAMPLE

Detailed description of a solution

It is assumed that a user has created a cinema service "movie" by using the general information processing module with the aim of presenting reviews of movies.

The command list for the general information processing module has been stored in the data base in a form presented in figure 3. The command list consists of successive commands, which can have a specification and parameters.

The message running on the system level has been described in figure 4. The processing of the message in the information processing module has been described more exactly in figure 5. Reference is made to these figures later in the text.

The request running on the system level

- It is assumed that a user of the service wants to use this service in the GSM short message network. In the GSM short message network the service is identified according to the first word of the request message. The user whose telephone number of the mobile phone is 0123456, sends (Figure 4: arrow 1) a message from his terminal
  MOVIE STAR WARS
  to the short message number 1234 of the information delivery server.

- The request comes to the information receiving module for short messages of the GSM network in question controlled by the short message number. The data receiving module converts the request in a form suitable for the internal system, which is common for the different networks.

  One practical internal presentation form for the data is such that the request is presented in a flexible way as a list of name-value pairs, whereby the data is clearly divided, but the number of data pairs has not been restricted in forehand, whereby the system can quickly fit to new network connections.
  The receiving module would convert the received message MOVIE STAR WARS into the following form (name=value):
  REQUEST=MOVIE STAR WARS
  KEY WORD= MOVIE
  NUMBER OF WORDS IN THE REQUEST=2
  THE FIRST WORD OF THE REQUEST=STAR
  THE SECOND WORD OF THE REQUEST=WARS
  ALL THE WORDS IN THE REQUEST=STAR WARS
  SENDER=01234567
  THE OPERATOR OF THE SENDER=gsmoperator
  RECEIVER=01234567
  THE TELEPHONE NUMBER OF THE SERVICE=01234
  THE ARRIVAL TIME OF THE REQUEST=11.9.2000 12:34:56
  TYPE OF REQUEST=GSM SMS

- Then the receiving module of the message transfers the request in this standard internal presentation form to the data routing part (Figure 4: arrow 2). The routing part of the message knows, on the basis of the key word, which of the information processing module is able to take care of this service request. In this case, it can be found in the service list of the routing part, that the film service is performed with the general information processing module. Therefore, the routing part transfers the request further to the general information processing module (Figure 4: arrow 3).

- The general information processing module receives the request still in the internal form. It looks after the command list corresponding to the key word MOVIE in its own command list, downloads that and begins to perform the commands in the list in the right order.

  It can for example be question about searching information from internet (Figure 4, arrows 4, 5). This function has been described more in detail below at "request running in the information processing module" and in figure 5 in detail. When the information processing module has performed the command list so far that the command now is to send the reply, it adds the reply message to the name-value list of the internal presentation form of the request:
  REPLY=Movie STAR WARS (1977) review 8.4/10 (12345 votes)
  and transfers the request further to the control module for the reply (Figure 4, arrow 6).

- When the receiving module for the reply receives the message, it sends the internal presentation form of the request further with all the information to the sending module corresponding to the operator of the sender (Figure 4, arrow 7). In some situations, it is preferable to send the reply through some other operator network, whereby the control module can forward the message to the information sending module of this other network.

- When the information sending module gets the request, it sends the reply to the operator network in question, to the telephone number of the receiver (Figure 4:

arrow 8). In this way the user finally gets its answer to the request. In our prototype system, the route of the request from user to user takes a few seconds, in other words the service works quickly.

The request running in the information processing module in detail

In the following there is described more in detail how the general information processing module handles the information (Figure 4: arrows 3-6, figure 5).

The general information processing module performs said commands in the command list in order. The system has also commands with which it is possible to go to some other command than to the following one, repeat some of the commands or conditionally depending on if a command was successful or not.

Each command line is performed in the following way:

- The parameters of the command are handled so that if words have been desired to be put in some special places, for example as a result of the request or as a result of some other command, the texts in question are replaced in the desired places of the parameter. In this way the function of the command can be parameterised by the sender of the request.

- The control is transferred to the module processing the command in question in the information processing module, which performs the function to which the command corresponds.

- Each command sets the following data as its result, which is stored to be used by later commands:

  Document: If information was fetched, the data in question is set as a document
  Cursor: In which place of the document we are, if the position of the cursor was changed
  Result: If data was searched or fetched, the data in question is set as a result of

the command

Was it successful: The information about that if the command was successful or not

The document contains a bigger amount of text which is maintained from one command to another, if the command to search information does not alter the content of the document. The search functions are directed to the content of the document. The cursor tells at which place of the document we are after each operation.

When the above mentioned request MOVIE STAR WARS appears in the information processing module and the command list of figure 3 is in use, the system works in the following way:

1	fetch_internet	html_code	http://www.example.com/Find?title=(*)

First the definition (*) in the parameter is extended to mean all words in the request in addition to the key word. Then the www-page, which address has been given, is fetched from internet. The html-code of the page in question remains as a document after that the command has been performed.

A user, that has built up a service in a way according to the invention, has figured out that the data of the movie can be found from such an internet-address as a www-page and has therefore placed such a command in the command list.

The system also stores the information about that that the page was searched from the www.example.com server so that the data later can be added to the end of the message as a source reference.

2	fetch	text	/Title?*

This command fetches the text given in the document. It is possible to use * and ? wildcards in the text of which * means any words/text and ? any single letter. As there is a place in the search document which reads

<LI><A HREF="/Title?0012345">Star Wars (1977)</A>
...

it means that the search is successful and the result of the command is the text at *,

in other words "0012345". The cursor remains in the end of the found text for further operations, in this case after the number series before the " - mark.

3	fetch_internet	html_code	http://www.example.com/Title?(=2)

In this case, the constructor of the service has, when creating the service, noticed that, in the search there will first come a page which has links to the movie pages themselves and another page with detailed information of the movie has to be fetched from the network. Therefore, another www-page is fetched in the command by using the text found in command 2 in the address.

In the parameter, the mark (=2) means the result of command 2., so it extends to the form http://www.example.com/Title?0012345, which is the address of the page to be fetched from www. As a result of the command, the address of the new www-page becomes the content of the document. Every time the content of document is completely changed, the cursor is placed in the beginning of the document.

4	fetch	text	TITLE>*<

In the following, the title of the page is searched from the page, in which there is the exact name of the movie mentioned. In command 3, the html-code of the searched page is the place

<TITLE>Star Wars (1977)</TITLE>

which is the place, wherein the function can find the name of the movie. The function of the special function * is constructed so that it works in the expected way in such cases (e. g. ' * ' matches a small number of white space characters in addition of ordinary letters). The cursor remains at the end of the found text. Then the text at * becomes the result of the command, in other words "Star Wars (1977)".

5	fetch	text	*/* * votes

The review of the movie, which is searched in this command, is in this case in the form

...8.4/10 (12345 votes)...

on the www-page. As * fits to several characters or a few words, the command "find text" finds the desired place from the document and the value "true" is presented to

illustrate that the search was successful. The text found becomes the value of the command, in other words "8.4/10 (12345 votes)".

6	if_not_succeeded	send_error	Movie (=4) no review

If the previous command, in which the review was searched, did not succeed (in other words the www-page did not have any review), an error message is sent to the user. In this case the command "find text" was successful why the error message is not sent, but the execution of the program continues from the following command. If the error message would be sent, the execution of the command list would end at the same time.

7	send	text	Review of (=4) film is (=5)

Finally, the content of the reply message is built up in a clear form by combining the results. The parameter (=4) is replaced with the result of the fourth command and the parameter (=5) with the result of the fifth command, so that the parameter in this case becomes the text

Review of movie Star Wars (1977) is 8.4/10 (12345 votes)

which the information processing module sends further to the reply control part to be sent to the sender of the request.

CLAIMS

1. Information delivery system, which is connected to one or more communication networks, c h a r a c t e r i s e d in that it comprises

a) an information delivery server having

information receiving modules for receiving messages from one or more networks and for converting of those to a form suitable for the information processing unit,

an information processing unit, which processes the messages in accordance with their content, fetches the information requested, handles the data and constructs replies to those,

information sending modules for sending the replies to one or several networks and for converting of those to a form suitable for the receiver

b) a user interface, with which services can be created and maintained in the information delivery server from one or more terminals connected to the information delivery system.

2. Information delivery system of claim 1, c h a r a c t e r i s e d in that the information sending modules get answers from an information control module for sending of the replies to the sending module of a suitable network.

3. Information delivery system of claim 1 or 2, c h a r a c t e r i s e d in that the information processing unit, which handles the messages in accordance with their content, fetches the data requested in them from one or more networks or data bases stored in the server.

4. Information delivery system of any of patent claims 1 - 3, c h a r a c t e r i s e d in that the information processing unit handles the messages and fetches the

information requested in them by means of a service product created in the information delivery server, which is created in form of a command list program, in form of a simple list of functions.

5. Information delivery system of claim 4 c h a r a c t e r i s e d in that the program is stored in a data base in the server or in some network connected to the server.

6. Information delivery system of any of claims 1 - 5 c h a r a c t e r i s e d in that the communication network is an open computer network, a closed computer network and/or a wireless communication network.

7. Method of delivering information to one or more communication networks, c h a r a c t e r i s e d in that
   a) messages are received from one or several networks,
   b) the received messages are converted to a suitable form for further processing,
   c) the messages are processed in accordance with the content, the information requested in them is fetched, the data is processed and replies to them are constructed,
   d) the replies are sent to correct network when they have been converted to a form suitable for the network in question.

8. Method of claim 7, c h a r a c t e r i s e d in that the information requested in the messages is fetched from one or several networks or from a data base stored in the server.

9. Method of any of claims 7 - 8, c h a r a c t e r i s e d in that the messages are processed and the information requested in them is fetched by means of a service product created in the information delivery server, which is created as a list of simple functions in form of a command list program.

10. Method of any of claims 7 - 9 c h a r a c t e r i s e d in that the information delivery product is stored in a database.

11. Method of any of claims 7 - 10 c h a r a c t e r i s e d in that the information delivery product is modified and/or created for own use and/or for everyone and/or for a limited user group by means of parameters which are added to the fields of the information delivery product program.

12. Method of any of claims 7 -11 c h a r a c t e r i s e d in that the function of the information delivery product is described with a binary program module which is transferred to the information delivery server.

13. Method of any of claims 7 -11 c h a r a c t e r i s e d in that the function of the information delivery product is described with a program which is stored in some other place of the network.

14. Method of any of claims 7 -13 c h a r a c t e r i s e d in that userwise or servicewise data, for the part of each information delivery product, is stored in the server between the requests.

15. Method of any of claims 7 -14 c h a r a c t e r i s e d in that individual data of the user is stored in the server, but not necessarily identification data of the user.

16. Method of any of claims 7 -15 c h a r a c t e r i s e d in that the information delivery product is constructed to follow the mediated information and its copyright situation and possibly to hinder the access to given data in given networks.

17. Method of any of claims 7 -16, c h a r a c t e r i s e d in that the reply of the service can be delayed to improve data security.

18. Service product in an information delivery server of any of claims 1 - 6, which is connected to one or several communication networks, with which service requests can be received from different networks and replies can be sent to

them, c h a r a c t e r i s e d in that it is a list of simple functions in form of a command list program.

19. Service product of claim 10, c h a r a c t e r i s e d in that its function is described with a binary program module and transferred to the information delivery server or to another place in the network.

20. Service product of claim 18 tai 19, c h a r a c t e r i s e d in that the function program of the service is presented in the data base in a menu form or in text form.

21. Service product of claim 18, c h a r a c t e r i s e d in that the functional program of the service is presented for the service producers in a form in which they can add the command parameters by themselves.

22. Service product of claim 18, c h a r a c t e r i s e d in that the functional program of the service is already in such a form for the service users, partly or completely, that the service can be used to receive information.

23. The use of the service product of any of claims 18 - 22 to create a service to an information delivery server, which is connected to one or more communication networks, with which service requests can be received from different networks and replies can be sent to them, c h a r a c t e r i s e d in that the service is created as a command list program, in the form of a list of simple functions to be placed in the function fields of the program.

AMENDED CLAIMS
[received by the International Bureau on 4 September 2001 (04.09.01);
original claims 1-23 replaced by new claims 1-24 (5 pages)]

CLAIMS

1. Information delivery system, which is connected to one or more communication networks and which comprises

a) an information delivery server having

information receiving modules for receiving messages from one or more networks and for converting of those to a form suitable for the information processing unit,

an information processing unit, which processes the messages in accordance with their content, fetches the information requested, handles the data and constructs replies to those,

information sending modules for sending the replies to one or several networks and for converting of those to a form suitable for the receiver,

c h a r a c t e r i s e d by

b) a user interface, with which services can be used, created and/or maintained in the information delivery server from one or more terminals connected to the information delivery system, by means of a service product for fetching, processing or storing information, the operation program of the service product being presented as a list of selected operations in a database in text form or in a ready-to-use form.

2. Information delivery system of claim 1, c h a r a c t e r i s e d in that the information sending modules get answers from an information control module for sending of the replies to the sending module of a suitable network.

3. Information delivery system of claim 1 or 2, c h a r a c t e r i s e d in that the information processing unit, which handles the messages in accordance with

their content, fetches the data requested in them from one or more networks or data bases stored in the server.

4. Information delivery system of any of patent claims 1 - 3, c h a r a c t e r i s e d in that the information processing unit handles the messages and fetches the information requested in them by means of the service product created in the information delivery server, which product is created in form of a command list program, in form of a simple list of functions.

5. Information delivery system of claim 4, c h a r a c t e r i s e d in that the program is stored in a data base in the server or in some network connected to the server.

6. Information delivery system of any of claims 1 - 5 c h a r a c t e r i s e d in that the communication network is an open computer network, a closed computer network and/or a wireless communication network.

7. Method of delivering information to one or more communication networks, in which method

a) messages are received from one or several networks,
b) the received messages are converted to a suitable form for further processing,
c) the messages are processed in accordance with the content, the information requested in them is fetched, the data is processed and replies to them are constructed,
d) the replies are sent to correct network when they have been converted to a form suitable for the network in question,

c h a r a c t e r i s e d in that the information is delivered by means of a service product for fetching, processing or storing information, the operation program of

the service product being presented as a list of selected operations in a database in text form or in a ready-to-use form.

8. Method of claim 7, c h a r a c t e r i s e d in that the information requested in the messages is fetched from one or several networks or from a data base stored in the server.

9. Method of any of claims 7 - 8, c h a r a c t e r i s e d in that the messages are processed and the information requested in them is fetched by means of the service product created in the information delivery server, which product is created as a list of simple functions in form of a command list program.

10. Method of any of claims 7 - 9 c h a r a c t e r i s e d in that the information delivery product is stored in a database.

11. Method of any of claims 7 - 10 c h a r a c t e r i s e d in that the information delivery product is modified and/or created for own use and/or for everyone and/or for a limited user group by means of parameters which are added to the fields of the information delivery product program.

12. Method of any of claims 7 -11 c h a r a c t e r i s e d in that the function of the information delivery product is described with a binary program module which is transferred to the information delivery server.

13. Method of any of claims 7 -11 c h a r a c t e r i s e d in that the function of the information delivery product is described with a program which is stored in some other place of the network.

14. Method of any of claims 7 -13 c h a r a c t e r i s e d in that userwise or servicewise data, for the part of each information delivery product, is stored in the server between the requests.

15. Method of any of claims 7 -14 c h a r a c t e r i s e d in that individual data of the user is stored in the server, but not necessarily identification data of the user.

16. Method of any of claims 7 -15 c h a r a c t e r i s e d in that the information delivery product is constructed to follow the mediated information and its copyright situation and possibly to hinder the access to given data in given networks.

17. Method of any of claims 7 -16, c h a r a c t e r i s e d in that the reply of the service can be delayed to improve data security.

18. Service product for fetching, processing or storing information in an information delivery server of any of claims 1 - 6, which is connected to one or several communication networks, with which service product requests can be received from different networks and replies can be sent to them, c h a r a c t e r i s e d in that the operation program of the service product is presented as a list of selected operations in a database in text form or in a ready-to-use form..

19. Service product of claim 18, c h a r a c t e r i s e d in that it is a list of simple functions in form of a command list program

20. Service product of claim 18 or 19, c h a r a c t e r i s e d in that its function is described with a binary program module and transferred to the information delivery server or to another place in the network.

21. Service product of any of claims 18 - 20, c h a r a c t e r i s e d in that the function program of the service is presented in the data base in a menu form or in text form.

22. Service product of any of claims 18 - 21, c h a r a c t e r i s e d in that the functional program of the service is presented for the service producers in a form in which they can add the command parameters by themselves.

23. Service product of any of claims 18 - 22, c h a r a c t e r i s e d in that the functional program of the service is already in such a form for the service users, partly or completely, that the service can be used to receive information.

24. The use of the service product of any of claims 18 - 23 for creating a service to an information delivery server, which is connected to one or more communication networks, with which service requests can be received from different networks and replies can be sent to them, c h a r a c t e r i s e d by adding command parameters to the service product in the form of a list of simple functions to be placed in the function fields of the operator program of the service product, which is created as a command list program.

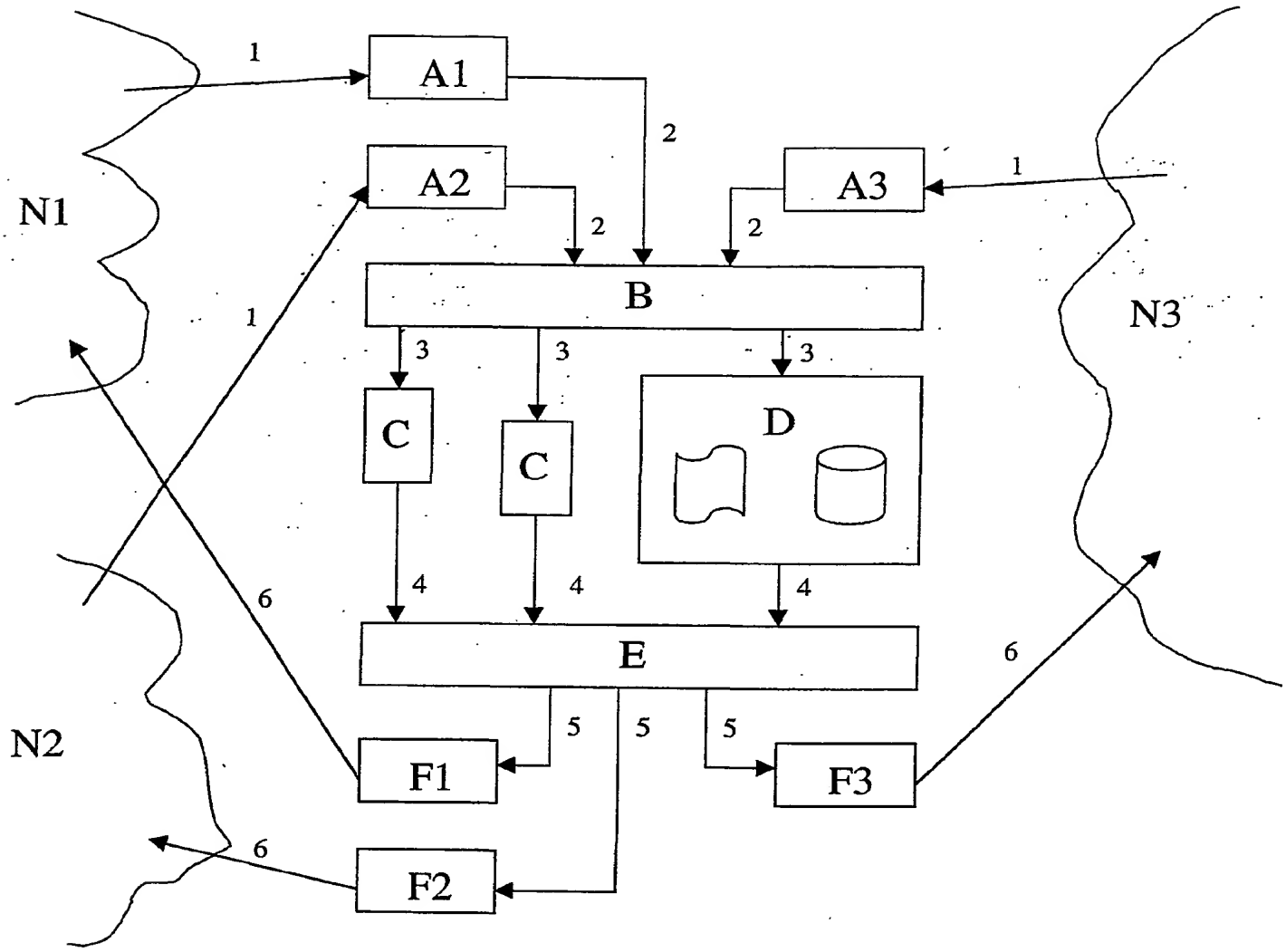


FIG. 1

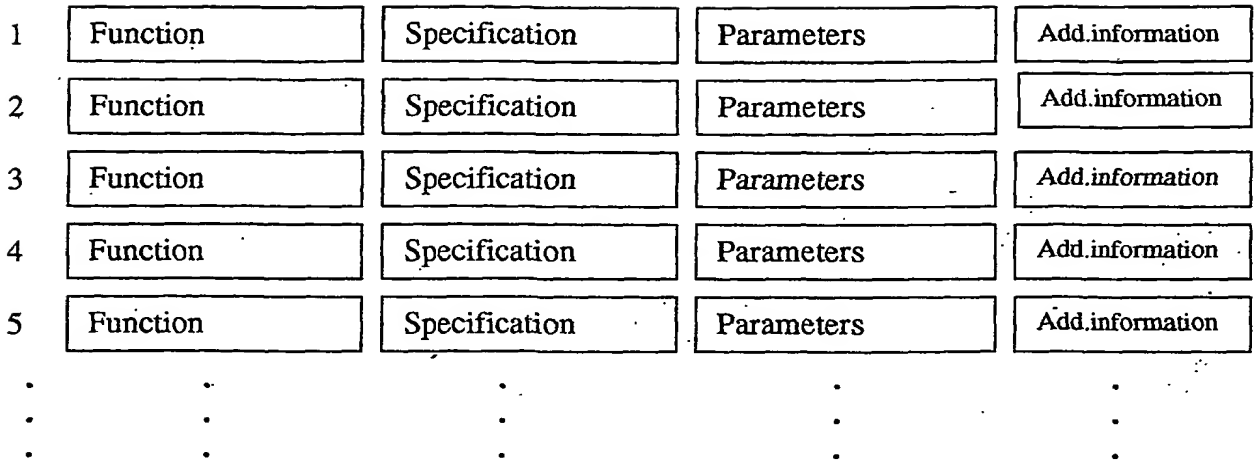

1
Function
Specification
Parameters
Add.information
2
Function
Specification
Parameters
Add.information
3
Function
Specification
Parameters
Add.information
4
Function
Specification
Parameters
Add.information
5
Function
Specification
Parameters
Add.information

FIG. 2

1.	fetch_internet	html_code	http://www.example.com/Find?title=(*)
2.	fetch	text	/Title?*
3.	fetch_internet	html_code	http://www.example.com/Title?(=2)
4.	fetch	text	TITLE>*<
5.	fetch	text	*/* * votes
6.	if_not_successful	send_error	Movie (=4) no review
7.	send	text	Movie (=4) review exists (=5)

FIG. 3

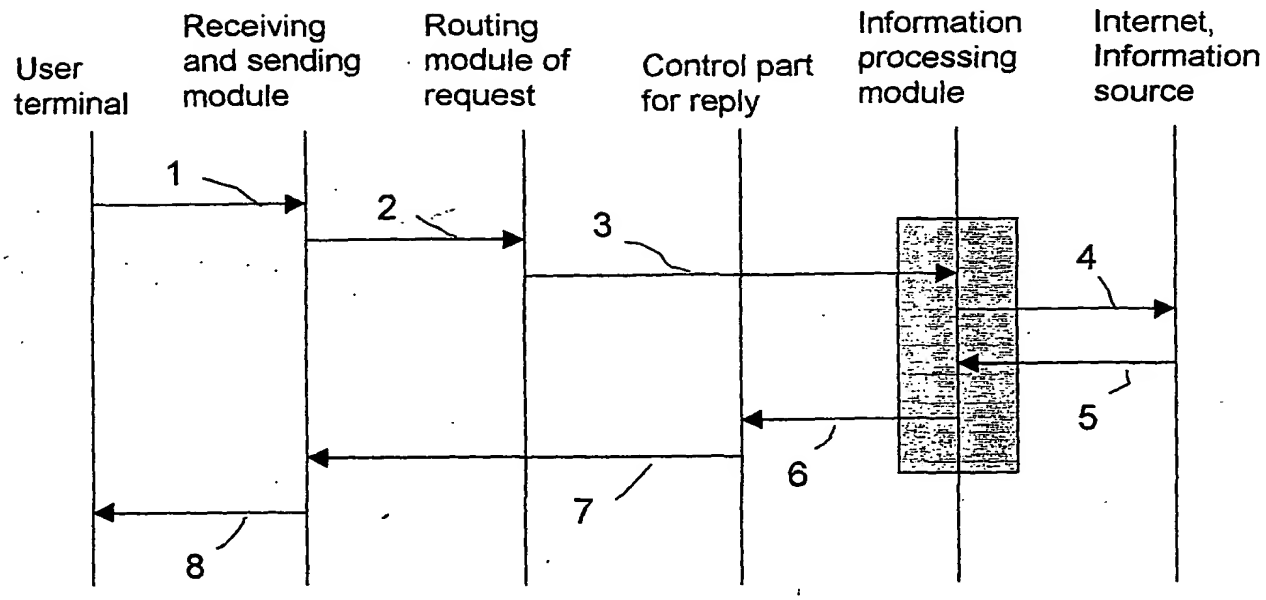

User terminal
Receiving and sending module
Routing module of request
Control part for reply
Information processing module
Internet, Information source
1
2
3
4
5
6
7
8

FIG. 4

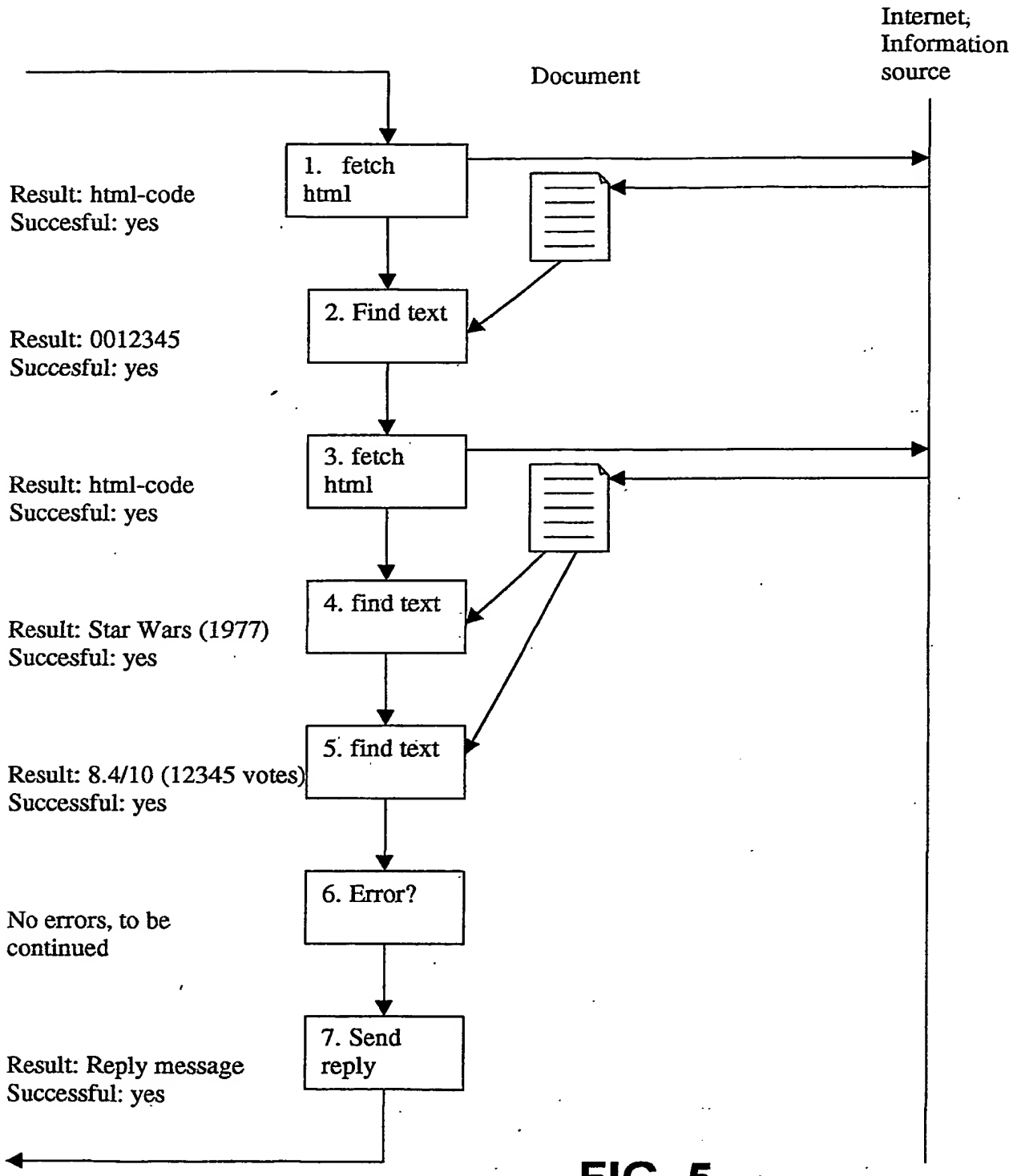

Internet; Information source
Document
1. fetch html
Result: html-code
Succesful: yes
2. Find text
Result: 0012345
Succesful: yes
3. fetch html
Result: html-code
Succesful: yes
4. find text
Result: Star Wars (1977)
Succesful: yes
5. find text
Result: 8.4/10 (12345 votes)
Successful: yes
6. Error?
No errors, to be continued
7. Send reply
Result: Reply message
Successful: yes

FIG. 5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI 00/01036

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04L 12/00
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5974449 A (CHANG ET AL), 26 October 1999 (26.10.99), figure 1, abstract ---	1,2,3,6,7,8, 17
A	EP 0923034 A1 (MATSUSHITA GRAPHIC SOMMUNICATIONS SYSTEMS, INC), 16 June 1999 (16.06.99), column 2, line 5 - column 3, line 18 ---	1-23
A	EP 0890913 A1 (PITNEY BROWES INC), 13 January 1999 (13.01.99), page 3, line 5 - line 29 --- --------	1-23

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
31 May 2001	12 07 2001
Name and mailing address of the International Searching Authority European Patent Office P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel(+31-70)340-2040, Tx 31 651 epo nl, Fax(+31-70)340-3016	Authorized officer Stefan Hansson/js Telephone No.

INTERNATIONAL SEARCH REPORT

Information on patent family members

30/04/01

International application No.
PCT/FI 00/01036

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5974449 A	26/10/99	NONE	
EP 0923034 A1	16/06/99	JP 11015755 A	22/01/99
		WO 9859297 A	30/12/98
EP 0890913 A1	13/01/99	CA 2243097 A	11/01/99